

Brian Alexander Todd - Curriculum Vitae

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Upon request

Education

- PhD** 2003 **Case Western Reserve University**
Biomedical Eng (Biomaterials), *Advisor: Prof. Steven J. Eppell*
- B ChE** 1997 **Georgia Institute of Technology**
Chemical Eng, Certificates in Biomedical Eng and Biochemistry

Professional Experience

- 2003 – **Lab of Physical and Structural Biology, National Institutes of Health (NICHD)**
Postdoctoral Research, Advisor: Dr. V. Adrian Parsegian
Single molecule studies of condensed DNA
- 2004 – **Protiveris, A BioMEMs Company, Rockville MD**
Consultant
Development of on-line calibration for microcantilever-based detection of biomolecular interactions
- 2002 – 2003 **Dept of Biomedical Eng, Case Western Reserve University**
Postdoctoral Research, Advisor: Prof. Steven J. Eppell
Acquisition and Modification of Tunable Femtosecond Laser and Scanning Near Field Optical Microscope for Biological Research
- 1997 – 2002 **Dept of Biomedical Eng, Case Western Reserve University**
Graduate Research, Advisor: Prof. Steven J. Eppell
Instrumental Analysis of Scanning Force Microscopy for Nanoscale Biomaterials: Applications to Cartilage

- 1996 - 1997 **Dept of Chemical Eng, Georgia Institute of Technology**
Undergraduate Research, Advisor: Prof. Anthanassis Sambanis
 Fabrication and Characterization of a Bioresorbable Coating that Promotes Angiogenesis
- 1995 - 1996 **Electronic Data Systems, Utilities Division, Atlanta, GA**
Software Engineer
 Provided support programming for utilities simulation software

Teaching Experience

- 2004 - **Part-time Faculty, Montgomery College, Germantown, MD**
 Lecturer in the Business, Science, Mathematics, and Technology Division
- 2000 - 2001 **Director, CWRU-Superior Mentoring Program**
 Organized a program pairing 24 CWRU students with 6th graders at Superior Elementary in East Cleveland
- 1998 - 2001 **Mentor, CWRU-Superior Mentoring Program**
 Mentored 4 6th graders at Superior Elementary in East Cleveland, helping prepare for state proficiency exam
- 1996 - 1997 **Teaching Assistant, Prof. Ronald Felton, Dept of Chemistry, GIT**
 Physical Chemistry II, Thermodynamics
 Physical Chemistry III, Statistical Mechanics

Honors/Awards

- 2004 Fellow Award for Research Excellence, National Institutes of Health
- 1997 – 2002 Whitaker Foundation Traineeship
- 2001 American Chemical Society Student Travel Award
- 1997 High Honors

Peer Reviewed Publications

- [1] Probing the limits of the Derjaguin approximation in DLVO force measurements by scanning force microscopy. B.A. Todd, S.J. Eppell, *Langmuir* **20**: 12, 4892–4897 (2004).
- [2] The inverse problem of scanning force microscope force measurements, B.A. Todd, S.J. Eppell, *Journal of Applied Physics* , **94**: 5, 3563–3572 (2003).

- [3] Connecting nanoscale molecular images with biophysical function. B.A. Todd, J. Rammohan, S.J. Eppell, *Biophysical Journal* , **84**, 3982–3991 (2003).
- [4] Molecular views and measurements of hemostatic processes using atomic force microscopy. R.E. Marchant, I. Kang, P.S. Sit, Z. Yue, B.A. Todd, S.J. Eppell, I. Lee, *Current Protein and Peptide Science* , **3**: 3, 249–274 (2002).
- [5] Squeezing out hidden force information from scanning force microscopes. B.A. Todd, S.J. Eppell, F.R. Zypman, *Applied Physics Letters* , **79**: 12, 1888–1890 (2001).
- [6] A method to improve quantitative analysis of SFM images at the nanoscale. B.A. Todd, S.J. Eppell, *Surface Science* , **491**: 3, 473–483 (2001). [special issue on SFM of biomaterials]
- [7] Improved analysis of time domain response of scanning force microscopy cantilevers. B.A. Todd, S.J. Eppell, F.R. Zypman, *Journal of Applied Physics* , **88**: 12, 7321–7327 (2000).

Conference Proceedings

- [1] Improved algorithm to extract force–distance curves from scanning force microscope data. S.J. Eppell, B.A. Todd, F.R. Zypman, *Materials Research Symposia Proceedings* Vol **189**, 189–194 (2000).

Conference Podium Presentations

- [1] Linking atomic force microscope images of proteins to their genetic sequence. B.A. Todd, S.J. Eppell, invited talk at *Microscopy and Microanalysis* , Quebec City, Canada (2002).
- [2] Recovery of AFM force–distance data in the snap–to–contact region: The essential nature of cantilever shape. B.A. Todd, F.R. Zypman, S.J. Eppell, *International Conference on Scanning Probe Microscopy, Cantilever Sensors and Nanostructures* , Seattle, WA (1999).
- [3] Production and analysis of high resolution polymer replicas of fibrillar collagen. P. Sims, B.A. Todd, S.J. Eppell, T. Li, K. Park, R. Albrecht, invited talk at *Microscopy and Microanalysis* , Portland, OR (1999).

- [4] Accurate force–distance curves in the snap–to–contact region. B.A. Todd, F.R. Zypman, S.J. Eppell, talk at Joint Ohio Section Fall Meeting of APS, AVS, and MatNet , Akron, OH (1998).

Conference Posters Presentations

- [1] Linking primary structure and biochemical function with protein conformation measured by scanning force microscopy. B.A. Todd, S.J. Eppell, Biophysical Society , San Francisco, CA (2002).
- [2] Improved range and resolution in scanning force microscope force measurements. B.A. Todd, S.J. Eppell, F.R. Zypman, Abstracts of Papers of the American Chemical Society 221: 253–COLL, Part 1 Apr 1, San Diego, CA (2001).
- [3] Improved algorithm to extract force–distance curves from scanning force microscope data. B.A. Todd, S.J. Eppell, F.R. Zypman, poster at Materials Research Society , Boston, MA (2000).
- [4] Submolecular structure of aggrecan by atomic force microscopy. B.A. Todd, S.J. Eppell, poster at Biomedical Engineering Society , Cleveland, OH (1998).

Popular Press Coverage

- [1] Atomic Force Microscopy Yields 3D Protein Structure, Physics News Update, The AIP Bulletin of Physics News , Number 582 #3, March 26, 2002 by Phil Schewe, James Riordon, and Ben Stein
- [2] CWRU researchers demystify protein at root of osteoarthritis, CWRU Campus News , July 23, 2002 by Marci Hersh

References

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